A STUDY TO ASSESS THE EFFECTIVENESS OF BREATHING EXERCISES ON HYPERTENSION AMONG PATIENTS WITH CHRONIC RENAL FAILURE IN SELECTED HOSPITAL AT COIMBATORE

DISSERTATION SUBMITTED TO THE TAMILNADU DR.M.G.R. EDICALUNIVERSITY, CHENNAI, IN PARTIAL FULFILMENT OF REQUIREMENT FOR THE DEGREE OF

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MEDICAL SURGICAL NURSING

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CERTIFIED THAT THIS IS THE BONAFIDE WORK OF

INDU K.M

SREE ABIRAMI COLLEGE OF NURSING,
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SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT
FOR THE DEGREE OF MASTER OF SCIENCE IN NURSING
TO THE TAMILNADU
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DEDICATION

****

"I dedicate this book to

God Almighty who blessed me to finish this work successfully."

I dedicate this book to my lovable parents

Mr.Muraleedharan.K.R

&

Mrs. Vijayamma PR

For supporting and encouraging me to believe in my self

I also dedicate this book to my beloved brother

Mr. Mahesh K.M

For his loving care, emotional support and encouragement

throughout the study.

****

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"Every good thing given and every perfect gift is from above, coming down from the Father of lights, with whom there is no variation or shifting shadow".

(James 1: 17)

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ABSTRACT

Chronic Renal Failure Patients have hypertension. In this context, complimentary therapy like Breathing Exercises has its own significance, thus enhancing the scope of nursing.

A quasi experimental study was done with pre test post test with control group to determine the effectiveness of Breathing Exercises on Blood Pressure among CRF patients. The subjects were 60 Chronic Renal Failure Patients with Hypertension using from Sree Abirami Hospital selected using non-probability purposive sampling technique. Among them 30 were allotted to interventional group and 30 to control group. Blood pressure was checked and categorized based on the World Health Organization (WHO) recommended blood pressure category table. Breathing Exercises was administered to the subjects in the interventional group for 15 minutes once in morning for 6 consecutive days.

The data were analyzed by using descriptive (Mean & Standard Deviation) and inferential statistics (Paired and unpaired "t" test). The study findings showed that the obtained't' value was 33.1*, 23.39*, 12.58* was significant at $p<0.05$ level. It shows that the breathing exercise was effective in reducing the level of blood pressure among patients with Chronic Renal Failure.

Key words: Breathing Exercises, Hypertension, Chronic Renal Failure Patients

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

CHAPTER I

INTRODUCTION

"Tension is who you think you should be, relaxation is who you are".

-Chinese proverb

Background of the study

The kidney is one of the major vital organs. Proper function of the urinary system is essential. Disorders related to kidney are currently the leading cause of death throughout the country.

Kidneys are the principal organs of the urinary system and their primary function is to regulate the volume and composition of extra cellular fluid (ECF) and to excrete waste products from the body. The kidneys also have several non excretory metabolic and endocrine functions, including blood pressure regulation, erythropoietin production, insulin degradation, prostaglandin synthesis, calcium and phosphorus regulation and vitamin D metabolism.

The kidneys balance the urinary excretion of substances against the accumulation within the body through ingestion or production. A disruption in renal function impairs the body's ability to maintain fluid, electrolyte and acid base balance. Nephron is the functional unit of the kidney. Damage to the nephrons decreases glomerular filtration rate (GFR) (Normal GFR is approximately 85 to 135 ml/min), the rate at which blood is filtered in the glomeruli of the kidney. When renal function declines suddenly, the functioning nephrons get over worked and may lead to developing renal failure, in which the kidneys fail to adequately filter waste

products from the blood. Renal failure is divided in to two; they are acute and chronic renal failure.

Acute renal failure (ARF) is an abrupt loss of kidney function, over a period of hours to a few days, in which the glomerular filtration rate (GFR) decreases, elevated serum creatinine and blood urea nitrogen (BUN) increase. Acute Renal Failure may lead to CRF.

CRF is defined as renal damage with moderate to severe decrease in the glomerular filtration rate (GFR) of 59- 15 ml/min. CRF comes under the stages of chronic kidney disease (CKD). CKD involves progressive, irreversible loss of kidney function. It is defined as either the presence of kidney damage or GFR less than 60ml/min for 3 months or longer. Chronic, or irreversible renal failure is a progressive reduction of functioning renal tissue such that the remaining kidney mass can no longer maintain the body's internal environment.CRF can develop insidiously over many years, or it may result from an episode of ARF from which the client has not recovered.

Chronic kidney disease (CKD) is a worldwide public health problem. According to world Health report (2002), CKD is the 12^{th} cause of death and 17^{th} cause of disability. In the United States, the rate of prevalent end stage of renal disease (ESRD) cases reached 1,752 per million populations, an increase of 1.1 percent from 2009. It was estimated that more than 10% of adults in the United States (2014) more than 20 million people- may have CKD, of varying levels of seriousness. Chances of having CKD increase with age; it increases after age 50 years and is most common among adults older than 70 years.

According to the latest U.S. Renal Data System Annual Data Report(2013) more than 6,60,000 Americans are being treated for kidney failure, also called end stage renal disease (ESRD) Of these, 468,000 are dialysis patients and more than 193,000 have a functioning kidney transplant.

The National Kidney Foundation of India (NKFI-2013) estimated that approximately 21 lakhs people go for kidney failure annually in India. According to the Department of Nephrology, Sri Ramachandra University, Chennai, Tamil Nadu (2008), the prevalence of chronic Renal Failure was 0.79% or7852 million/ population.

CKD can cause high blood pressure. High blood pressure can damage blood vessels in the kidneys, reducing their ability to work properly. When the force of blood flow is high, blood vessels stretch and so the blood flows more easily. Eventually, this stretching scar weakens blood vessels throughout the body, including those in the kidneys.

If the kidneys' blood vessels are damaged, they may stop removing wastes and extra fluid from the body. Extra fluid in the blood vessels may then raise blood pressure even more, creating a dangerous cycle.

Need for the Study

Hypertension has been reported to occur in 85% to 95% of patients with CKD (stage 3 and 4). The relation between hypertension (HTN) and CKD is cyclic in nature. Uncontrolled HTN is a risk factor for developing CKD and is associated with a more rapid progression of CKD. The hypertension is a major predictor of

development and progression of CKD; thus, targeting better blood pressure control is likely to have a positive impact on outcomes in CKD.

S.J.Rosansky (1993) conducted a study on blood pressure changes during day time sleep and comparison of day time and night time sleep related blood pressure changes in patients with Chronic Renal Failure. The relationship between depth of day time sleep and change in MAP and heart rate was measured and correlated. The 33 subjects, 14 were with normal renal function and 19 with renal dysfunction. Second group sample was 15 CRF patients. Night asleep versus day awake MAP and heart rate was measured. The result in day time sleep MAP changes are not significantly different in the normal versus renal dysfunction group. In the 33 subject MAP declines from the upright position to phase ¾ sleeps. Blood pressure was (118±3.6 to 106± 3.6 mmHg).Heart rate declines in the recumbent position 76± 2.3 to 70±2.1 b/m. Among the 15 CRF patients heart rate (10.8±2.8%$p<0.05$), but not MAP during night time sleep. This study concluded that MAP and heart rate declines significantly during day time sleep.

According to WHO expert committee (1996) and Joint National Committee Report on prevention, Detection, and Evaluation of high blood pressure recommends non pharmacological treatment as the first measure in control of Hypertension.

Non pharmacological measures like progressive muscle relaxation, acupuncture, music therapy, breathing exercises are used to treat hypertension.

The breath is considered the basic force of life in many cultures. In India the prana (life or literally breathing forth) of yogic tradition signifies the Universal life force as it enlives the individual being. In Chinese tradition, Qi is the vital energy of life. A component of Qi is called Natural Air Qi and is absorbed by the lungs from the

air we breathe. The Bible states that God breathed in to Adams nostrils the breath of life.

Anshuman (2011) conducted a study on effect of left nostril breathing among hypertensive patients. 30 number of hypertensive patients who were taking regular treatment were Pulse rate and Blood pressure were recorded using a standard sphygmomanometer. Left nostril breathing exercises was administered for 5 minutes and again BP, and pulse rate was checked. Results of this study revealed that pulse rate dropped from 84.73 ±1.89 per minute to 81.80±1.84 minute. Systolic BP dropped from 144.50±3.68 mmHg to 133.83±3.6mmHg and diastolic BP dropped from 100.96±2.48 mmHg to 94.83±2.4 mmHg. The study revealed that BP and pulse rate can be decreased in non pharmacological way.

Adrian Pinto (2013) conducted a study on effect of deep breathing on blood pressure in women. Quasi experimental approach was used. Two group pre-test post test method was selected for the study. Sample size 60, in which 30 was interventional and 30 to control group. Non probability convenience sampling technique was used. The study period was 2 weeks. The experimental group was taught breathing exercises and BP was checked at various intervals. Result of this study revealed that there was a significant reduction in the Blood Pressure in the Experimental group compared to Control group.

Pranayama, meaning 'breathe control,' is an ancient technique involving slow and rhythmic breathing. It is known that the regular practice of *pranayama* increases parasympathetic tone, decreases sympathetic activity, improves cardiovascular and respiratory functions, decreases the effect of stress and strain on the body and improves physical and mental health. Regular practice of rhythmic slow breathing has

been shown to increase baroreflex sensitivity and reduce chemo reflex activation, and to reduce systolic, diastolic and mean blood pressures as well as heart rate variations in hypertensive patients.

Today, breathing exercise is the most sought after form of Complementary Care in India and has hundreds of studies investigating its effectiveness published all over the globe. Breathing exercise is truly an emerging field that the researcher find absolutely fascinating. The researcher was thrilled to have the opportunity to bring this modality to look forward to breaking new ground with the study of breathing exercise.

Sree Abirami Hospital is one of the best Nephro-Urology hospitals in Coimbatore. It is a 300 bedded multispecialty hospital having dialysis unit with hi-tech facilities. This has been awarded as "Wellness in kidney care" and an ISO Certified (1901-2008) tertiary hospital. About 30 to 40 kidney transplantations are done every year. SAH does nearly 500 dialysis per month and 20-25 patients are dialyzed in a day, out of which 90% are Chronic Renal Failure patients with hypertension.

The investigator during her clinical experience in Dialysis department at Sree Abirami Hospital observed that most of the Chronic Renal Failure patients experienced Hypertension. From the literature review, researcher realized the importance of reducing hypertension among Chronic Renal Failure patients by nursing interventions and designed a study to assess the effectiveness of Breathing Exercises on Hypertension among Chronic Renal Failure Patients in Sree Abirami Hospital at Coimbatore.

Statement of the Problem

A study to assess the effectiveness of breathing exercises on hypertension among patients with Chronic Renal Failure in selected hospital at Coimbatore.

Objectives of the Study

- To assess the pre-test and post-test level of Blood Pressure among CRF patients between control and interventional groups.
- To determine the effectiveness of breathing exercises on Blood Pressure among CRF patients in interventional group.
- To find out the association between post-test level of Blood Pressure in both the groups among CRF patients with their selected demographic variables.

Hypotheses

- There is a significant difference between the pre and post test level of Blood Pressure among CRF patients in interventional and control groups.
- There is a significant difference in the level of Blood Pressure among CRF patients before and after breathing exercises in the interventional group.
- There is a significant association in the post-test level of Blood Pressure with their selected demographic variables in both control and interventional groups.

Operational Definitions

Effectiveness

Effectiveness refers to the extent to which breathing exercises has achieved the desired effect by reducing the Blood Pressure among CRF patients as assessed by World Health Organization (WHO) recommended Blood Pressure Category Table.

Hypertension

In this study hypertension refers to the patients diagnosed to have CRF with systolic blood pressure above140 mmHg and diastolic blood pressure above 90 mmHg.

Breathing Exercise

It refers to a systemic and regular patterned steps and procedures of inhalation and exhalation using abdominal muscle and diaphragm to reduce the level of Blood Pressure among CRF patients. This study focuses on three types of exercises which includes equal breathing, abdominal breathing and alternate nostril breathing administered for 15 minutes, with each exercise carried out for 20 -30 times.

Abdominal Breathing Exercises

- With one hand on the chest and the other on the belly, patient takes deep breath in through the nose, ensuring the diaphragm inflates with enough air to create a stretch in the lungs and exhale slowly through mouth, having 10 breaths per minute with 20-30 breath in 4-5 minutes.

Equal Breathing Exercises

- Patient is made to sit comfortably and asked to slowly inhale for 4 counts. Then exhale slowly for a count of 4 through the nose, which is repeated for 20-30 times with 10 breaths/min.

Alternate Nostril Breathing Exercises

- Patient is asked to hold the right thumb over the right nostril and inhale deeply through the left nostril. Then at the peak of

inhalation, the left nostril is closed with the ringer finger and exhalation is done through the right nostril.

Chronic Renal Failure Patient

Chronic renal failure involves progressive, irreversible loss of kidney function. In this study, it refers to patients and having BP more than 140/90 mmHg with the presence of kidney damage as assessed by blood urea (7 to 20mg/dl), (creatinine >1.1 mg/dl), edema, and anuria (<100ml of urine in a day).

Delimitations

The study is limited to

- Chronic Renal Failure (CRF)patients with hypertension >140/90 mmHg
- the effect of Breathing exercises on BP
- blood pressure measured by sphygmomanometer
- the data collection period of 4 weeks.
- CRF patients coming for dialysis at Sree Abirami Hospital

Projected outcomes

- This study will help the nurses to identify the effectiveness of breathing exercises on reducing hypertension.
- The study findings will help to reduce the hypertension among patients with chronic renal failure.
- The finding of the study will help the nurses to motivate the care givers and patients to practicing of breathing exercises to reduce the level of Blood Pressure

CHAPTER II

REVIEW OF LITERATURE

Review of literature is one of the most important steps in the research process. It is an account of what is already known about a particular phenomenon. It provides a handy guide to a particular topic.

According to American Nurse Association (2000) literature review is a body of text that aims to review the critical points of knowledge on a particular topic of research.

This chapter deals with the collected information relevant to the present study through the published materials. These publications were the foundation to carry out the research work.

Studies are organized under the following headings.

- Studies related to Chronic Renal Failure.
- Studies related to Blood Pressure among Chronic Renal failure patients.
- Studies related to effect of breathing exercises on Blood Pressure.

Studies Related to chronic Renal Failure

M. Oyetunde (2014) conducted a study on incidence of Chronic Renal Failure among diabetic and Hypertensive patients at the University College Hospital. Sample was 288 patients among 123 (42.7%) had diabetes mellitus (DM) and hypertension, and 165 (59.3%) had other medical conditions. Purposive sampling

technique was used to collect the data. Pearson product moment correlation used to analysis the data. The result of this study was diabetes mellitus and CRF were significantly correlated ($p<0.05$), the relationship was positive and strong. Hypertension and CRF was significantly correlated ($p<0.05$), the relationship was positive buy weak($r=0.254$). It concluded that need to replicate this study between 2 or 3 hospitals.

Qiu li zang (2008) conducted a study on prevalence of chronic kidney disease in population studies. A systematic review was performed on available published data in MEDLINE. The sample was 26 studies extracted in a systematic way. The studies were conducted in different populations, and the number of study participants ranged from 237 to 65181. The median prevalence of CKD was 7.2% in persons aged 30 years or older. In persons aged 64 years or older prevalence of CKD varied from 23.4% to 35.8%. This concluded that, CKD is becoming a common disease in the general population. Accurately detecting CKD in special groups remains inadequate, particularly among elderly persons, females or other ethnic groups such as Asians.

Joseph Coresh (2007) conducted a study on prevalence of Chronic Kidney disease in the United States. The sample was non institutionalized adults aged 20 years or older in 1988-1994 (n=15,48) and 199-2004 (n=13,233). Cross sectional analysis used. The prevalence of Chronic Kidney disease was using the persistent albuminuria and decreased estimated Glomerular Filtration Rate (GFR). The GFR was estimated using the abbreviated diet modification. The result of this study was higher prevalence of diagnosed diabetes and hypertension and higher body mass index explained the entire increase in prevalence of albuminuria. This study revealed

that increasing prevalence of diabetes and hypertension and raises concerns about future increased incidence of Kidney Failure and other complication of CKD.

Steven and Esther (2003) conducted a study on prevalence of kidney damage in Australian adult outside the United States. The sample of prevalence of proteinuria, hematuria, and reduced GFR in the Australian adult population was determined using a cross-sectional study of 11,247 noninstitutionalized Australians aged 25 yr or over, randomly selected using a stratified, cluster method. Subjects were interviewed and tested for proteinuria, hematuria confirmed by urine microscopy (abnormal: >10,000 red blood cells per millilitre) or dipstick (abnormal: 1+ or greater) on midstream urine sample. This study revealed proteinuria was detected in 2.4% of cases (95%CI: 1.6%, 3.1%), hematuria in 4.6% (95% CI: 3.8%, 5.4%), and reduced GFR in 11.2% (95% CI: 8.6%, 13.8%). Age, diabetes mellitus, and hypertension were independently associated with proteinuria; age, gender, hypertension with hematuria; and age, gender, and hypertension with reduced GFR. The study concluded that approximately 16% of the Australian adult population has either proteinuria, hematuria, and/or reduced GFR, indicating the presence of kidney damage.

Jungers and Chauveau (1996) conducted a prospective study on age and gender related incidence of Chronic Renal Failure in a French Urban area. The sample was 2775 (1780 males, 995 female) Chronic Renal Failure patients with serum creatinine ≥200 μmol/l between July 1991 and June 1992, an overall incidence of 260/million population. 847 had advanced renal failure (Scr ≥500 μmol/l) and 541 patients (19.5%) were ≥75 years of age. The age-related incidence was 92, 264, 523 and 619/million population in the age groups 20–39, 40–59, 60–74 and ≥75 years old. The study revealed that the annual incidence was twice as high in males than in

females up to 75 years and three times as high in patients ≥75 years (1124 vs 356/million population). It concluded that epidemiological study in a large French urban area indicates an incidence of 260 patients per million populations annually referred to nephrology units for chronic renal failure defined by Scr ≥200 μmol/l, with a marked preponderance of males and a dramatic increase of incidence with age in both genders.

Studies Related to Blood Pressure among Chronic Renal Failure patient

Francesco (1991) conducted a study on loss of nocturnal decline of blood pressure in hypertension with CRF patients at an open hospital ward. The sample was thirty hypertensive patients with chronic renal failure due to nonvascular nephropathies were matched by age, sex, and mean 24 h blood pressure, with 30 patients affected by uncomplicated mild-to-moderate essential hypertension. Blood pressure recordings were performed for 48 h at sampling intervals of 15 min. In essential hypertension a mean (± SD) nocturnal fall of systolic and diastolic blood pressure was found (12.7 ± 3.8 and 12.9 ± 4.8 mm Hg, respectively), while renal patients had an average nocturnal increase of 2.7 ± 8.9 mm Hg and 3.7 ± 7.8 ($P < .001$) with higher heart rates, with a significantly blunted nocturnal fall (4.4 ± 4.5 beats/min as compared to 9.3 ± 3.1 beats/min of essential hypertension($P < .001$). The study concluded that an abnormal day-night pattern of blood pressure is present in chronic renal failure patients independently from external interfering factors. Hence, casual measurements of blood pressure confined to daytime may underestimate a hypertensive condition associated with chronic renal failure.

Baumgart and walger (1991) conducted a study on blood pressure elevation during the night among patients with Chronic Renal Failure, haemodialysis and after

Renal Transplantation. The sample was patients with advanced chronic renal failure (n = 20), on chronic haemodialysis (n = 20), after renal transplantation (n = 21) and in matched control groups without renal disease. Nocturnal blood pressure reductions were significantly observed in all patient groups as compared with the respective control groups. But in almost none of the 61 controls the mean values during night-time (8 p.m.-8 a.m.) exceed the mean day time values (8 a.m.-8 p.m.). In 10 of the 61 renal patient's blood pressure was higher during the night.

Studies Related To Breathing Exercises on Blood Pressure

Mohamed (2013) conducted a quasi experimental study to examine the effect of slow deep breathing exercises on blood pressure and heart rate among newly diagnosed patients with essential hypertension in medical and surgical departments at a general government hospital at Cairo, Egypt. Convenient samples of 120 adult patient aged 51-60 yrs and married were chosen for this study. Blood Pressure and heart rate measurements were taken before and after slow deep breathing exercise. The result was high statistical significant difference was found in systolic and diastolic BP as well as in heart rate between before and after intervention. The study concluded that practicing slow deep breathing exercise decreased the systolic and diastolic blood pressure.

Pinto Adrian (2013) conducted a study on the effect of deep breathing on blood pressure in hypertensive women. A quasi experimental approach with non-probability convenient sampling technique was used. Sample size was 60, out of which 30 was allotted to experimental and 30 to control group. The experimental group was taught breathing exercises and Blood pressure was checked at various intervals and was compared with the control group. Result of this study revealed that

there was a significant reduction in the Blood Pressure in the Experimental Group compared to control group.

Bhavarani (2012) conducted a study on immediate effect of Chandra nadi pranayama (left unilateral forced nostril breathing) on cardiovascular parameters in hypertensive patients. The subjects were 12 males and 10 females with essential hypertension under regular standard medical management for more than 5 years. The subjects were taught to perform Chandra nadi pranayama (CNP). They were made to breath at a slow pace for a count of 5(6 breaths/min), taking nearly 5 minutes to complete 27 rounds of CNP. After the intervention heart rate and blood pressure were measured. The result revealed an immediate decrease in all the cardiovascular parameters with the decrease in heart rate(HR),systolic pressure(SP),diastolic pressure(DP), pulse pressure(PP),mean pressure(MP),rate-pressure product(RPP). This study concluded that CNP is effective in reducing heart rate and systolic pressure in hypertensive patients in regular standard medical management.

Naik (2011) conducted a study on the effect of left nostril breathing in hypertensive patient. 30 numbers of hypertensive patients who were taking regular treatment were the study subjects. A baseline record of Pulse rate and Blood pressure were recorded. Left nostril breathing exercises was carried out for 5 minutes and again the parameters were checked. Results of this study projected that the mean pulse rate dropped from 84.73 ± 1.89 per minute to 81.80 ± 1.84 minute. Systolic BP dropped from 144.50 ± 3.68 mmHg to 133.83 ± 3.6mmHg. Diastolic BP dropped from 100.96 ± 2.48 mmHg to 94.83 ± 2.4 mmHg. This study revealed that BP and pulse rate can be decreased in non pharmacological way.

Amandeep (2011) conducted a study on effectiveness of abdominal breathing exercise on blood pressure among hypertensive patients. The sample was 60, primary hypertensive patients, in which 30 subjects were allotted to experimental and control groups respectively. The research design was quasi experimental group, with two group pre and post test design. Pre-test and post-test blood pressures were taken on day1, 2, 3 and 11 for both the groups. The result revealed that the post-test mean score of blood pressure in the experimental group was significantly less than that of control group.

Anderson (2010) conducted a study on regular slow breathing exercise effect on blood pressure and breathing patterns at rest. The sample was 40 participants with pre hypertension or stage1 hypertension were taught device guided breathing (DGB) daily for 15 minutes. Participants practiced breathing exercise at home for 4 weeks. The result showed that the DGB (device guide breathing) intervention decreased clinic resting BP; mid day ambulatory systolic BP and resting breathing rate and increased resting tidal volume. This study concluded that a short term autonomic mechanism mediated the observed changes in resting BP.

Pramanik (2009) conducted a comparative study to evaluate the immediate effect of slow pace *bhastrika pranayama* (respiratory rate 6/min) for 5 minutes on Blood Pressure and Heart rate and the effect of the same breathing exercise for the same duration (5 minutes) following oral intake of hyoscin- N- butyl bromide (Buscopan). Heart rate and Blood pressure of the subjects was recorded following standard procedure. For the first group, *Pranayama* was conducted in a a cool well ventilated room. After the *pranayama,* blood pressure and heart rate was recorded. In the second group blood pressure and heart rate was recorded following half an hour

oral intake of hyoscine N - butyl bromide 20 mg. The study revealed that after slow *bhastrika pranayamic* breathing for 5 minutes, both systolic and diastolic blood pressure decreased with a slight fall in heart rate. Whereas no significant alteration in blood pressure and heart rate was observed among those who performed breathing exercises after oral intake of hyoscine N butyl bromide.

Mourya (2009) conducted a study on autonomic functions in patients with essential hypertension. The study design was a randomized, prospective controlled clinical study using three groups. The sample was 60 male and female patients aged 20-60 years with stage 1 essential hypertension. Subjects were divided in to control and 2 interventional groups. Slow and fast breathing exercises were demonstrated for 3 months respectively. Blood pressure, to the interventional group autonomic function tests such as standing to-lying ratio, immediate heart rate response to standing, heart rate variation with respiration, hand grip were done to the subjects. The result of this study was that slow breathing had stronger effect than fast breathing. BP decreased longitudinally over a 3 month period with both slow and fast breathing exercises. Study concluded that breathing exercises benefit with hypertension, and was very effective with slow breathing.

Viskoper (2003) conducted a study on non pharmacologic treatment of resistant hypertensives. The samples were from two family clinic and one hospital outpatient clinic with uncontrolled blood pressure (BP) without changing medication. Seventeen resistant hypertensive exercised device-guided slow breathing for 8 weeks, 15 min daily, and self-monitored BP. The result of this study showed that there was a significant reduction in both office BP (−12.9/−6.9 mm Hg, $P < .001$ and home BP (−6.4/−2.6 mm Hg, $P < .01/P < .05$).

Nord (1991) conducted a study on effects of slow breathing exercises and music in patients with hypertension. The aim was to evaluate blood pressure using device guided slow breathing exercises (DGBE)and listening to music over a period of 15 months in patients with hypertension, 48 patients using DGBE-exercises and 42 patients in a CD group listening to music from a CD-player, for 15 minutes three times a week. The result revealed that *systolic* blood pressure (SBP) reduction was 9.8 mmHg ($p<0.001$) and -7.7 mmHg ($p<0.01$) in the DGBE and CD groups respectively. Diastolic blood pressure (DBP) reduction was -4.1 mmHg ($p<0.05$) and -2.5 mmHg (ns) in the DGBE and CD groups respectively. No significant differences were found in median blood pressure between the groups neither at inclusion nor after 15 months. The study concluded that Person centred care with breathing exercises and listening to music can reduce blood pressure in hypertensive patients.

CONCEPTUAL FRAMEWORK

Conceptual framework act as building block for the research study. Conceptual frame work plays several interrelated roles in the progress of a science. The overall purpose is to make research findings meaningful and generalizable.

Polit and Beck (2004) state that a conceptual framework is a group of concepts and set of propositions that provide prescription on the major concepts. It helps to stimulate research and the extension of knowledge by providing both direction and impetus.

The present study aims to evaluate the effectiveness of Breathing Exercises in reducing the level of blood pressure among CRF patients. Conceptual frame work for this present study is on the basis of Ernestine Wiedensbach's clinical nursing practice theory.

She prepared her theory in (1969), as a prescriptive theory of nursing. Prescriptive theory directs action toward an explicit goal. It consists of 3 factors, which includes central purpose, prescription and realities.

Central purpose

Central purpose defines that quality of health the nurse desires to affect or sustain in her patients and specifies what she recognizes to be her special responsibility in caring for the patient.

In this present study, the central purpose is to reduce the level of blood pressure among patients affected with CRF.

Prescription

Prescription refers to the plan of his or her care. A prescription is directive to activity which specifies both the nature of the action that will most likely lead to fulfilment of the nurses central purpose and the thinking process that determines it.a prescription is the appropriate

broad general action taken to implement of the basic concept as well as the behaviour required to carry out these actions either voluntary or involuntary based on the central purpose.

In this study breathing exercises is prescribed for 15 minutes in order to achieve the central purpose of reducing the level of blood pressure.

Realities

Realities refer to the physical, physiological, psychological, emotional and spiritual factors that are at a play in a situation in which nursing actions occur at a given moment.

In this present study physiological, physical factors are age, gender, occupational status, health history and personal history.

Nursing Practice:

Nursing practice is an art in which nursing action is based on the principles of helping. It has 3 components.

1. Identification
2. Ministration
3. Validation

Identification

Involves viewing the patient as an individual with unique experience and understand the patient's perception of the condition. Determine a patients need for the help based on the existence of a need, whether the patient realize the need which prevents the patient from meeting the need, whether the patient could meet the need alone.

In this present study, identification, is the need for reduction in level of blood pressure among Chronic Renal Failure identified through health organization recommended Blood pressure category table.

Ministration

It refers to the provision of needed help. It requires identification of need and a patient who wants help.

In this present study, the identified need of reducing blood pressure was achieved through breathing exercises given to the CRF patients when Blood Pressure were high.

Validation

After ministration, the nurse validates whether the purpose of the nursing action has been fulfilled.

In this study, refers to the achievement of reduced Blood Pressure among the subjects who performed Breathing Exercises.

CHAPTER III

METHODOLOGY

Methodology refers to the means of gathering data that are common to all sciences including nursing.

Methodology is the study of the general approach to inquiry in a given field.

Research methodology is a systematic way to solve the research problem and also to carry out the academic study and research in a correct manner (Polit and Beck, 2004).

This chapter deals with the methodological approach adopted for the study. It includes description of research approach, research design, variables, setting of the study population, sample, criteria for sample selection, sampling technique, development and description of tools, data collection procedure and plan for data analysis.

Research Approach

A quantitative approach was used to determine the effectiveness of breathing exercises on Blood Pressure among patients with CRF.

Research Design

Polit and Hungler (1995) stated that the research design incorporated the most important methodological decisions that a researcher makes in conducting a research study.

According to Nancy Burns (2004), the research design is the blue print for conducting the study that maximizes the control over factors that could interfere with

the validity of the findings. It guides the researcher in planning and implementing the study in a way that is most likely to achieve the intended goal.

A quasi experimental pre test -post test control group design was chosen

GROUP	PRETEST	INTERVENTION	POST TEST		
			Immediately	At half an hour	At One hour
Interventional group	O_1	X_1	O_2	O_3	O_4
Control group	O_1	X_0	O_2	O_3	O4

Key:-

$O_{1:-}$ pre-test

$X_{1:-}$ Intervention

$X_{0:-}$ No intervention

$O_{2:-}$ post-test immediately

O_3:- post-test after half an hour

$O_{4:-}$ Post-test after one hour

Variables

Dependent variable : Blood Pressure

Independent variable : Breathing Exercise

Setting of the Study

According to Polit and Hungler (2004) research settings are specific places in a research where data collection is to be made. The selection of setting was done on the basis of feasibility of conducting the study, availability of subjects, and permission of authorities.

The study was conducted at Sree Abirami hospital at Coimbatore. It is a 300 bedded multi speciality hospital having dialysis unit. Sree Abirami Hospital is one of the best urology hospitals in Coimbatore. This has been awarded as "Wellness in kidney care" and an ISO Certified (1901-2008) tertiary hospital. Nearly 90% of patients at Sree Abirami Hospital are admitted for the treatment of Chronic Renal Failure. It has a high tech dialysis unit in which around 25 patients are dialysed every day. About 30 to 40 kidney transplantations are done every year.

Population

According to Polit and Hungler (2003), a population is the entire aggregation of cases in which researcher is interested.

Target population for the study was patients with CRF.

Accessible population for the study was CRF patients in Sree Abirami Hospital.

Sample

According to Polit and Hungler (2005), the sample consists of a subset of population selected to participate in a research study.

A total number of 60 samples were selected for the study, among them 30 were allotted for interventional group and the remaining 30 for control group.

Criteria for Sample Selection

Inclusion Criteria

- Available during the period of data collection
- The CRF patients with hypertension having systolic blood pressure more than 140mmHg and diastolic blood pressure more than 90 mmHg
- Those who are willing to participate in the study
- Both males and females.
- Chronic renal failure patients who are coming for dialysis

Exclusion criteria

- Patients who have already undergone renal transplantation
- Patients with altered consciousness
- Bedridden patients
- Patients with spinal problems
- Patients with hemiplegia and paraplegia

Sampling Technique

Sampling technique is the process of selecting a portion of the population to represent the entire population.

The sample for this study was selected by adopting non probability purposive sampling technique. The researcher first checked the Blood Pressure and selected the sample who fulfilled the inclusion criteria.

Development of the Instrument

The standard blood pressure scale was used as a tool to measure the level of Blood Pressure among patients with Chronic Renal Failure

Description of the Tool

The tool consists of 2 parts.

Part I: It consists of demographic variables that includes 3 sections

a. Family profile: It consists of age, gender, and occupational status
b. Health history: It consists of duration of having hypertension, and CRF medication detail, duration of undergoing haemodialysis and any complications patients developed during dialysis, urine output.
c. Personal habits: It includes dietary pattern.

Part II: sphygmomanometer was used to check the Blood Pressure. The measured Blood Pressures were categorized using WHO recommended Blood Pressure Category Table.

Categories Of Blood Pressure	Systolic (mmHg)	Diastolic (mmHg)	*Mean Arterial Pressure (MAP)
Normal Blood Pressure	120-139	80-89	93-103
Mild Hypertension	140 – 159	90-99	107-119
Moderate Blood Pressure	160-179	100-109	120-132
Severe Hypertension	>180mmHg	>110mmHg	133.3

*Mean Arterial Pressure

It is defined as the average arterial pressure during a single cardiac cycle. In this study the researcher used the MAP = [(2 x diastolic) +systolic] / 3 formula.

Content Validity

According to Burns and Groove (2005) the validity of an instrument is the determination of the extent to which the instrument reflect the abstract constant that is being examined.

Validity of the tool was obtained from five nursing experts and two medical experts and one yoga therapist. The instrument was reframed taking into consideration, the suggestions given by the experts.

Pilot Study

Polit and Beck (2004), defines the pilot study is a small-scale version or trial run done in preparation of a major study.

A pilot study was conducted in Sree Abirami Hospital. A total number of 10 patients were selected and were divided into two groups as control and interventional group, 5 patients in each group. The data collection of the pilot study was done for 1 week. Every day morning intervention was given and every afternoon control group. The purpose was to find out the feasibility of the study and the study was found to be feasible. The result of the pilot study revealed that the Mean Arterial Pressure of pre-test among interventional group was 115.63 and post-test was 111.63 and the mean difference was 4. The obtained't' value 7.8 was significant at $p<0.05$ level. The pilot study results showed that the setting, sample and tool were feasible enough to conduct the main study

Data Collection Procedure

Prior permission was obtained from the authorities of Sree Abirami Hospital. The study was conducted for a period of 4 weeks. Totally 60 sample were selected for the study, among them 30 were allotted to interventional group and the remaining 30 to control group.

Each day 10 sample was selected for interventional group and 10 for control group based on the inclusion and exclusion criteria.

The interventional group was assessed in the morning and the control group in the afternoon.

The researcher first checked the blood pressure of the subjects. After screening the patients the researcher administered breathing exercises namely abdominal breathing, equal breathing and alternate nostril breathing exercises to the subjects in the Interventional group. Subjects were made to perform the exercises for 30 times in 15 minutes. After the intervention the researcher checked the blood pressure immediately (zero hour), at half an hour and at one hour later. Reading of each sample was taken 2 times weekly for 4 weeks.

Control group was assessed every day afternoon. No intervention was given for control group. The researcher checked the blood pressure at same intervals like that of Interventional group.

- Abdominal Breathing Exercises

With one hand on the chest and the other on the belly, patient takes deep breath in through the nose, ensuring the diaphragm inflates with enough air

to create a stretch in the lungs and exhale slowly through mouth, having 10 breaths per minute with 20-30 breath in 4-5 minutes.

- Equal Breathing Exercises

Patient is made to sit comfortably and asked to slowly inhale for 4 counts. Then exhale slowly for a count of 4 through the nose, which is repeated for 20-30 times with 10 breaths/min.

- Alternate Nostril Breathing Exercises

Patient is asked to hold the right thumb over the right nostril and inhale deeply through the left nostril. Then at the peak of inhalation, the left nostril is closed with the ringer finger and exhalation is done through the right nostril.

Plan for Data Analysis

Demographic variables were analyzed by using descriptive statistics (Frequency, Percentage). The effectiveness of breathing exercises on blood pressure was analyzed by using inferential statistics (Paired't' and independent't' test) and association between levels of blood pressure with their selected demographic variables was analyzed using Chi Square test.

Protection of Human Rights

The study was conducted after the approval of research committee of the college and hospital. The nature and purpose of the study was explained to the authorities of Sree Abirami Hospital, Coimbatore. Oral consent was obtained from the study participants. Assurance was given to the study samples that the anonymity of each

individual would be maintained strictly. Breathing exercises was demonstrated to the control group after the study to overcome the ethical issues.

CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of the data collected from 60 CRF patients to evaluate the effectiveness of breathing exercises in reducing the level of hypertension.

Polit and Beck (2003) has noted that data analysis is "the systematic organization, synthesized research data and testing of research hypothesis using those data".

The purpose of analysis is to reduce the data to a manageable and interpretable form so that the research problem can be studied and tested.

The study findings are presented in four sections as follows:

Section I : Data on demographic variables of CRF patients between Interventional and control group.

Section II : Data on assessment of level of Blood Pressure among CRF patients.

Section III : Data on effectiveness of breathing exercises in reducing the level of Blood Pressure among CRF patients.

Section IV : Data on association between the level of Blood Pressure among CRF Patients and their selected demographic variables.

SECTION I

DATA ON DEMOGRAPHIC VARIABLES OF CHRONIC RENAL FAILURE PATIENTS.

Table: 1

Frequency and Percentage Distribution of Demographic Variables among Chronic Renal Failure Patients in Interventional and Control Group.

N=60

S. No.	Demographic Variables	Interventional Group		Control Group		Total	
		n	%	n	%	n	%
1	Age (in years)						
	a) 20-30	2	6.6	7	23.3	9	15
	b) 31-40	14	46.6	7	23.3	21	35
	c) 41-50	9	30	10	33.4	19	31.6
	d) Above 50	5	16.8	6	20	11	18.4
2	Gender						
	a) Male	23	76.7	23	76.7	46	76.7
	b) Female	7	23.3	7	23.3	14	23.3
3	Occupational status						
	a) Govt employee	0	0	1	3.3	1	1.7
	b) Private employee	2	6.6	1	3.3	3	5
	c) Self employed	10	33.4	4	13.4	14	23.3
	d) Unemployed	18	60	24	80	42	70
4	How long have you been suffering from hypertension?						
	a) 0-5 years	21	70	16	53.4	37	61.8
	b) 5-10 years	6	20	10	33.3	16	26.6
	c) 10-15 years	3	10	3	10	6	10
	d) Above 15 years	0	0	1	3.3	1	1.6

(Contd.,)

S. No.	Demographic Variables	Interventional Group		Control Group		Total	
		n	%	n	%	n	%
5	Since how many years are you taking medications for hypertension?						
	a) 0-5 years	21	70	16	53.4	37	61.8
	b) 5-10 years	6	20	10	33.3	16	26.6
	c) 10-15 years	3	10	3	10	6	10
	d) Above 15 years	0	0	1	3.3	1	1.6
6	How long have you been suffering from Chronic Renal Failure?						
	a) 0-2 years	21	70	9	30	30	50
	b) 2-3 years	7	23.3	16	53.4	23	38.3
	c) 3-4 years	2	6.6	3	10	5	8.4
	d) Above 4 years	0	0	2	6.6	2	3.3
7	Duration of dialysis						
	a) 0-2 years	21	70	9	30	30	50
	b) 2-3 years	7	23.3	16	53.4	23	38.3
	c) 3-4 years	2	6.6	3	10	5	8.4
	d) Above 4 years	0	0	2	6.6	2	3.3
8	Did you develop any complication during dialysis						
	a) hypertension	14	13.3	8	26.6	12	20
	b) Muscle cramps	15	50	17	56.6	32	53.4
	c) Nausea	3	10	0	0	3	5
	d) Hypotension	8	26.7	5	16.6	13	21.6
9	How much is your urine output per day?						
	a) Less than 1 lr	30	100	30	100	60	100
	b) Normal 1 -1.5 lr	0	0	0	0	0	0
	c) Above 1.5 lr	0	0	0	0	0	0

(Contd.,)

S.No	Demographic Variables	Interventional Group		Control Group		Total	
		n	%	n	%	n	%
10	Serum creatinine						
	a) Less than 05 mg/dl	30	100	30	100	60	100
	b) Normal 0.5 mg/dl	0	0	0	0	0	0
	c) Above 1.1mg/dl	0	0	0	0	0	0
11	Dietary pattern						
	a) Vegetarian	20	66.6	22	73.4	42	70
	b) Non vegetarian	6	20	6	20	12	20
	c) Eggetarian	4	13.3	2	6.6	6	10

Table 1: Reveals with regard to age, the majority of the patients 14 (46.6%) belonged to 31-40years, and only 2(6.6%) belonged to 20-30 years in interventional group and in control group. Majority 10 (33.34%) were between the age group of 41-50 years and minority of 6(20%) were above 50 years of age.

Regarding gender, 23(76.6%) were males and 7(23%) were females in respectively in each group.

Regarding occupational status, majority of CRF patients 42 (70%) were unemployed and minority of 1(1.7%) was Govt employee.

Regarding duration of hypertension, majority 37(61.8) were suffering from hypertension for 0-5 years duration, only 1(3.3%) sample in control group was suffering from hypertension above 15 years.

Regarding the number of years one is taking medication majority of 21(70%) and 16 were taking medication in intervention group for 0-5 years and control group

respectively. Whereas none of them in interventional group and control group was taking medication for more than 15 years.

With regard to duration of suffering from CRF most of the patients 30(50%) fall between 0-2 years and only 2(33%) suffer for more than 4 years.

Regarding duration of dialysis of dialysis in interventional group majority 21(70%) belonged to 0-2 years and none of them were above 4 years. In control maximum numbers of 16(53.4%) and minimum of 2 (6.6) were between 2-3 years and above 4 years respectively.

With regard to development of complication during dialysis, most of the subjects 15(50%) and 17(56.6%) developed muscle cramps respectively in interventional and control group.

Regarding urine output both Interventional and Control Group had less than normal level (<1 L/24 hours). Also the serum creatinine levels were above normal in both the group.

Assessment of dietary pattern revealed that regarding 42(70%) of them were vegetarian.

SECTION II

DATA ON LEVEL OF BLOOD PRESSURE AMONG PATIENT WITH CHRONIC RENAL FAILURE.

Table 2.1

Frequency and Percentage Distribution on Level of Blood Pressure among CRF Patients in Control Group.

N=30

Week	Blood Pressure Level	Pre-test		Post-test					
				Zero hour		At Half an hour		At One hour	
		n	%	n	%	n	%	n	%
Week 1	Normal	0	0	0	0	0	0	0	0
	Mild	1	3.4	0	0	0	0	0	0
	Moderate	14	46.6	12	40	15	50	13	43.3
	Severe	15	50	18	60	15	50	17	56.7
Week 2	Normal	0	0	0	0	0	0	0	0
	Mild	6	20	2	6.7	2	6.7	2	6.7
	Moderate	15	50	13	43.3	18	60	18	60
	Severe	9	30	15	50	10	33.3	10	33.3
Week 3	Normal	0	0	0	0	0	0	0	0
	Mild	2	6.7	0	0	0	0	0	0
	Moderate	21	70	11	36.6	8	26.6	11	36.6
	Severe	7	23.3	19	63.4	22	73.4	19	63.4
Week 4	Normal	0	0	0	0	0	0	0	0
	Mild	6	20	0	0	0	0	0	0
	Moderate	15	50	9	30	10	33.3	10	33.3
	Severe	9	30	21	70	20	66.7	20	66.7

Table 2.1 revealed that is 1st week in control group majority of 15(50%) and minority of 1(3.4%) had severe and mild blood pressure respectively during pre-test. Blood pressure taken after an hour also was not much variant. In week 4 the pre-test level of Blood pressure for maximum15 (50%) was moderate and minimum 6(20%) was mild, and at one hour the Blood pressure among 20(66.7%) was severe and 10(33.3%) was moderate.

Table 2.1

Frequency and Percentage Distribution of Pre-test and Post-test Level of Blood Pressure among CRF Patients in Interventional Group.

N=30

Week	Blood Pressure Level	Pre-test		Post-test					
				Zero hour		At Half an hour		At One hour	
		n	%	n	%	n	%	n	%
Week 1	Normal	0	0	0	0	0	0	0	0
	Mild	0	0	0	0	0	0	1	3.4
	Moderate	5	16.6	29	96.6	30	100	29	96.6
	Severe	25	83.4	1	3.4	0	0	0	0
Week 2	Normal	0	0	0	0	0	0	0	0
	Mild	0	0	6	20	7	23.3	6	20
	Moderate	7	23.3	24	80	23	77.7	24	80
	Severe	23	76.7	0	0	0	0	0	0
Week 3	Normal	0	0	4	13.7	0	0	2	6.6
	Mild	10	33.3	26	86.3	24	80	27	90
	Moderate	20	66.6	0	0	6	20	1	3.4
	Severe	0	0	0	0	0	0	0	0
Week 4	Normal	0	0	26	86.3	12	40	2	6.6
	Mild	28	93.3	4	13.7	18	60	27	90
	Moderate	2	6.7	0	0	0	0	1	3.4
	Severe	0	0	0	0	0	0	0	0

Table 2.1 revealed that the pre-test Blood pressure levels were severe among 25(83.4%) and 23(76.7) subjects respectively during 1st and 2nd week. Whereas, 20(66.6) subjects had moderate level during 3rd week and 28(93.3%) had mild level in 4th week. None of them Blood pressure levels were severe.

When measured after 1 hour of intervention, majority of 29(96.6%) and 24(80%) during 1st and 2nd week respectively were moderate and during 3rd and 4th week the Blood pressure was mild among majority of 27(90%) subjects.

SECTION III

DATA ON EFFECTIVENESS OF BREATHING EXERCISES ON BLOOD PRESSURE AMONG PATIENTS WITH CRF IN CONTROL GROUP

Table 3.1

Mean, Standard Deviation, Mean Difference and't 'Value on Pre-Test and Post-Test Blood Pressure among CRF Patients in Control Group.

(Paired't' value)

N=30

S. No.	Variables	Mean	Standard deviation	Mean difference	t value
1	Pre test	135.3	6.2		
2	Post test				
	Zero hour	135.8	5.5	0.5	0.70
	At Half an hour	132.7	6.3	2.6	1.6
	At One hour later	136	5.3	0 .7	1.84

Table 3.1 reveals that in Control Group, the mean pre test score was 135.3 with standard deviation 6.2. The post-test mean was 135.8, 132.7 and 136 during zero hour, half an hour and one hour later respectively.

The obtained post-test't' value was not significant in all the readings (zero hour, half an hour and one hour later.)

Table 3.2

Mean, Standard Deviation, Mean Difference and 't' Value on Pre-Test & Post-Test Blood Pressure among Patients with CRF in Interventional Group.

(paired't' test)

N=30

Sl. No.	Variables	Mean	Standard deviation	Mean difference	't' Value
	Pre-test	132.3	3.54		
	Post test				
	a) Zero hour	116.5	1.6	16.3	33.1*
	b) At Half an hour	120	2.05	12.6	23.39*
	c) At One hour later	122.6	2.3	10	12.58*

*-significant at $p<0.05$ level

Table 3.2 elicits the overall score on the level of Blood pressure among samples in pre-test and post-test. The mean pre-test score was 132.3. The mean value during post-test was 116.5,120 and 122.6 respectively at zero hour, half an hour and one hour later.

The obtained' t'value during post-test was significant at $p<0.05$ level in all the readings (zero hour, half an hour and one hour later).

It indicates the effectiveness of Breathing Exercises on Blood pressure.

Table 3.3

't' Value of Post-Test level of Blood Pressure among Chronic Renal Failure in Control and Interventional Group.

(Unpaired' t' test)

N=60

S. No.	Groups	Zero hour	Half an hour	One hour later
		't' value	't' value	't' value
1	Control group Interventional group	6.7*	5.71*	2.50*

*- significant at P<0.05 level

Table 3.3 reveals the post-test level of Blood pressure between Control and Interventional groups. The obtained 't' value was significant at <0.05 level in all levels of Blood pressure measurements during zero hour, half an hour and one hour later.

Hence the stated hypothesis is accepted. It is inferred that Breathing Exercises are effective in reducing the level of blood pressure.

SECTION IV

DATA ON ASSOCIATION BETWEEN LEVEL OF BLOOD PRESSURE AMONG CRF PATIENTS WITH THEIR SELECTED DEMOGRAPHIC VARIABLES.

Table 4.1

Frequency, Percentage and χ^2 Distribution on Level of Blood Pressure Among CRF Patients with their Selected Demographic Variables In Interventional Group Immediately, at Half An Hour, at One Hour Later.

N=60

S. No.	Demographic variables	Chi-square		
		Immediately	At Half an hour	At One hour later
1	Age	2.39	8.12*	0.90
2	Gender	0.30	0.49	0.185
3	Occupational status	0.67	0.66	1.7
4	How long have you been suffering from hypertension?	0.44	1.55	2.4
5	Since how many years are you taking medications for hypertension?	0.44	1.55	7.8
6	How long have you been suffering from Chronic Renal Failure?	0.43	2.86	3.51
7	Duration of dialysis	0.43	2.86	3.54
8	Any complication during dialysis	0.77	2.007	3.3
9	How much is your Urine output per day?	0	0	0
10	Serum creatinine	0	0	0
11	Dietary pattern	0.524	5.5	4.6

* -significant at $p<0.05$ level

Table 4.1 envisages the substantive summary of chi-square analysis which was used to bring out the relationship between the level of Blood Pressure with their selected demographic variables.

It was inferred that age has significant association between levels of blood pressure among CRF patients with their selected demographic variables in Interventional group.

Other demographic variables had no significant association between levels of blood pressure among CRF patients.

Table 4.2

Frequency, Percentage and χ^2 Distribution on Level of Blood Pressure Among CRF Patients with their Selected Demographic Variables In Control Group immediately, at Half an Hour, at One Hour Later.

N=60

S. No.	Demographic Variables	Chi-Square		
		Immediately	At Half an hour	At One hour later
1	Age	7.0	5.26	7.64
2	Gender	1.81	0.184	0.352
3	Occupational status	1.49	1.87	2.01
4	How long have you been suffering from hypertension?	8.5*	5.62	6.77
5	Since how many years are you taking medications for hypertension?	8.5*	5.62	6.77
6	How long have you been suffering from Chronic Renal Failure?	2.5	1.50	2.44
7	Duration of dialysis	2.5	1.50	2.44
8	Any complication during dialysis	3.89	2.22	0.749
9	How much is your Urine output per day?	0	0	0
10	Serum creatinine	0	0	0
11	Dietary pattern	0.478	0.639	0.44

*-Significant at $p<0.05$level

Table 4.2 showed that, duration of suffering from hypertension and duration of taking antihypertensive have significant association between level of blood pressure among CRF patient with their selected demographic variables in control group.

Other demographic variables had no significant association between levels of blood pressure among CRF patient.

CHAPTER - V

DISCUSSION

The aim of the present study was to evaluate the effectiveness of Breathing Exercises in reducing the level of Blood Pressure among Chronic Renal Failure Patients. The study was conducted by using Quasi-experimental design. The subjects were selected for the study in Sree Abirami Hospital at Coimbatore. The sample size was 60, among them 30 were in Interventional Group and 30 were in Control Group.

Sphygmomanometer was used to monitor the Blood Pressure. The mean arterial blood pressure was taken for calculation. The responses were analyzed by using descriptive statistics (Mean, Standard deviation, Frequency, Percentage) and inferential statistics (paired and unpaired't' test and chi-square). Discussion on the findings was arranged based on the objectives of the study.

The first objective was to assess the pre-test and post-test Blood Pressure among CRF patients between Control and Interventional Groups.

In control group, the blood pressure values between pre-test and post-test do not highly vary. Blood pressure at one hour were severe for 17,10,19 and 20bsubjects during 1st, 2nd,3rd and4th week which prove that there was no much difference in blood pressure levels in control group. Whereas in Interventional group, during 1st and 2nd week of pre-test 25and 23subjects had Blood pressure/whereas none of them had severe Blood pressure during 3rdand 4th week. Further, it was majority none of the subjects had severe to note that level of Blood pressure after one hour of exercise. This shows that the Breathing exercises had been effective in reducing hypertension.

This study is supported by sim and shi et.al (2014) who conducted a retrospective cohort study on the impact of achieved blood pressure on mortality risk and ESRD among 398,419 treated hypertension subjects. Mortality occurred in 25,182(6.3%) and ESRD in 4,957(1.2%).

The second objective of the study was to determine the effectiveness of breathing exercises on Blood Pressure among CRF patients in Interventional Group.

The mean pre-test score was 132.3. The mean value during post-test was16.5, 120,122.6 at zero hour, half an hour and one hour later. The obtained' value was highly significant in all levels.

Hence the hypothesis 2 was accepted. Breathing exercises is effective in reducing the hypertension.

The study findings are supported by Peleg, Rosenthal et.al (2001) who conducted a study on effectiveness of slow breathing using an interactive device on blood pressure among 13 hypertensive patients for 8 weeks. The study revealed that slow breathing significantly reduced blood pressure.

The findings are similar to the results of the study done by Mori and Yamamoto et.al (2005) to determine the effect of deep breathing on blood pressure and pulse rate. Subjects in this were recruited from clinics and hospital. In one group, blood pressure was measured before and after taking deep breathing over a period of 30 s and other group blood pressure was measured before and after a 30 s rest in sitting position. The study revealed that in both the groups systolic blood pressure and diastolic blood pressure and pulse rate were significantly reduced, whereas the blood

pressure reduction were more in the 1st group who under treatment deep breathing than in the 2nd group.

The third objectives of the study was to find out the association between post- test level of Blood Pressure in both the groups with their selected demographic variables (age, gender, occupational status, duration of having hypertension and CRF, duration of undergoing haemodialysis, and any complications patients developed during dialysis, urine output and dietary pattern.) In interventional and control group.

The result revealed that there was a significant association between the level of blood pressure and age, duration of suffering from hypertension and duration of taking antihypertensives.

CHAPTER VI

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter presents a brief account of the present study. It deals with the summary, conclusion and recommendations of the study. Conclusions are drawn from the findings and the implications of the results for nursing practice, nursing education, nursing research and nursing administration.

SUMMARY

The Study was to evaluate the effectiveness of Breathing Exercises on Hypertension among patients with Chronic Renal Failure in Selected hospital at Coimbatore.

The objectives of the Study were

- To assess the pre-test and post-test level of Blood Pressure among CRF patients between control and interventional groups.
- To determine the effectiveness of breathing exercises on Blood Pressure among CRF patients in interventional group.
- To find out the association between post- test level of Blood Pressure in both the groups among CRF patients with their selected demographic variables.

A quasi experimental pre-test and post-test control group design was used to evaluate the effectiveness of breathing exercises on hypertension among patients with Chronic Renal Failure in selected hospital at Coimbatore.

A Non probability purposive sampling technique was adopted to select the sample.

The data collection tool consisted of 2 parts.

Part I : It consists of demographic variables that includes 3 sections

a) Family profile : It consists of age, gender, occupational status
b) Health history : It consists of duration of having hypertension and Chronic Renal Failure, medication details, duration of undergoing haemodialysis, and any complications patients developed during dialysis, urine output.
c) Personal habits : Which includes dietary pattern

Part II: Sphygmomanometer was used to check blood pressure. The measured Blood pressures were categorized using World Health Organization recommended Blood Pressure Category Table.

The study was conducted for a period of 4 weeks. Totally 60 sample were selected for the study, among them 30 were allotted to interventional group and the remaining 30 to control group.

Each day 10 sample were selected for interventional group and 10 for control group based on the inclusion and exclusion criteria.

The interventional group was assessed in the morning and the control group in the afternoon. Reading of each sample was taken 2 times, weekly for 4 weeks.

The researcher first checked the blood pressure of the subjects. After screening the patients the researcher administered breathing exercises namely abdominal breathing, equal breathing and alternate nostril breathing exercises to the

subjects in the Interventional group. Subjects were made to perform the exercises for 30 times in 15 minutes. After the intervention the researcher checked the blood pressure at zero hour, at half an hour and at one hour later.

Control group was assessed every day afternoon. No intervention was given for control group. The researcher checked the blood pressure at same intervals like that of Interventional group.

MAJOR STUDY FINDINGS

- ✓ According to the demographic variables, majority of the 21(35%) samples were from the age group of 31-40 years and males (46(76.7%) and unemployed (42(70%), maximum of the subjects 37(61.8%) were suffering from hypertension and taking medication 37(61.8%) for less than 5 years, and were suffering from CRF for less than 2 years and on dialysis. With regard to development of muscle cramps, most of them 32(53.34%) developed during dialysis. Further majority 60(100%) of the subjects had urine output less than 1 lr/24 hours and majority 60(100%) of them serum creatinine levels were above normal in both the groups. Most of them 42(70%) were vegetarian.
- ✓ According to the level of blood pressure in pre-test majority25 (83.4%) of the sample had severe level of blood pressure in interventional and control group. In post-test maximum 28(93.3%) of the samples in interventional group.
- ✓ The overall post-test score of breathing exercises on blood pressure among CRF patients in interventional group was less than the mean pre-test score. The paired' value during post-test was significant at $p<0.05$ level in all readings.

- ✓ There was significant association between the level of blood pressure among CRF patients with their selected demographic variables such as age, and the duration of having suffered from hypertension and duration of taking antihypertensives.

CONCLUSION

The main conclusion drawn from the present study was that most of the Chronic Renal Failure patients had high level of Blood Pressure. After receiving breathing exercises there was a significant reduction in the level of Blood Pressure. Samples became familiar and found themselves comfortable and also expressed satisfaction. It is concluded that the breathing exercises is effective and a simple strategy to reduce the blood pressure.

IMPLICATION OF THE STUDY

According to Tolsma (1995), the section of the research report that focuses on nursing implication usually includes specific suggestions for nursing practice, nursing education, nursing research and nursing administration.

NURSING PRACTICE

Clinical nurse can:

- learn accurate assessment of Blood Pressure using standardized World Health Organization recommended Blood Pressure Category Table.
- learn the techniques of breathing exercises.
- encourage the care givers to use breathing exercises as a complimentary therapy.

- recognize the findings of the current research which can be a baseline for providing instructions to Chronic Renal Failure patients with hypertension.

NURSING EDUCATION

- The student nurses will acquire knowledge regarding the various complementary methods used to reduce blood pressure among Chronic Renal Failure patients.
- The nursing students will learn proper blood pressure assessment technique among Chronic Renal Failure patients.
- Nursing curriculum should focus on screening of hypertension in hospital.

NURSING RESEARCH

- Research can be conducted on other complementary therapy for hypertension among Chronic Renal Failure patients.
- Findings of the study can be added to the research review regarding the effectiveness of breathing exercises in reducing blood pressure.
- The study findings can be used as the baseline data.

NURSING ADMINISTRATION

- Conduct the education programmes for the nurses on this complimentary technique.
- Nurse can explore innovative ideas in preparation of appropriate teaching material and organizing the health education programme on hypertension.

RECOMMENDATIONS

- The same study can be replicated using large sample.
- Effectiveness of breathing exercises can be compared with other complementary therapies to find its effectiveness.

- A similar study can be conducted for a longer duration.
- The same study can be conducted in different settings.

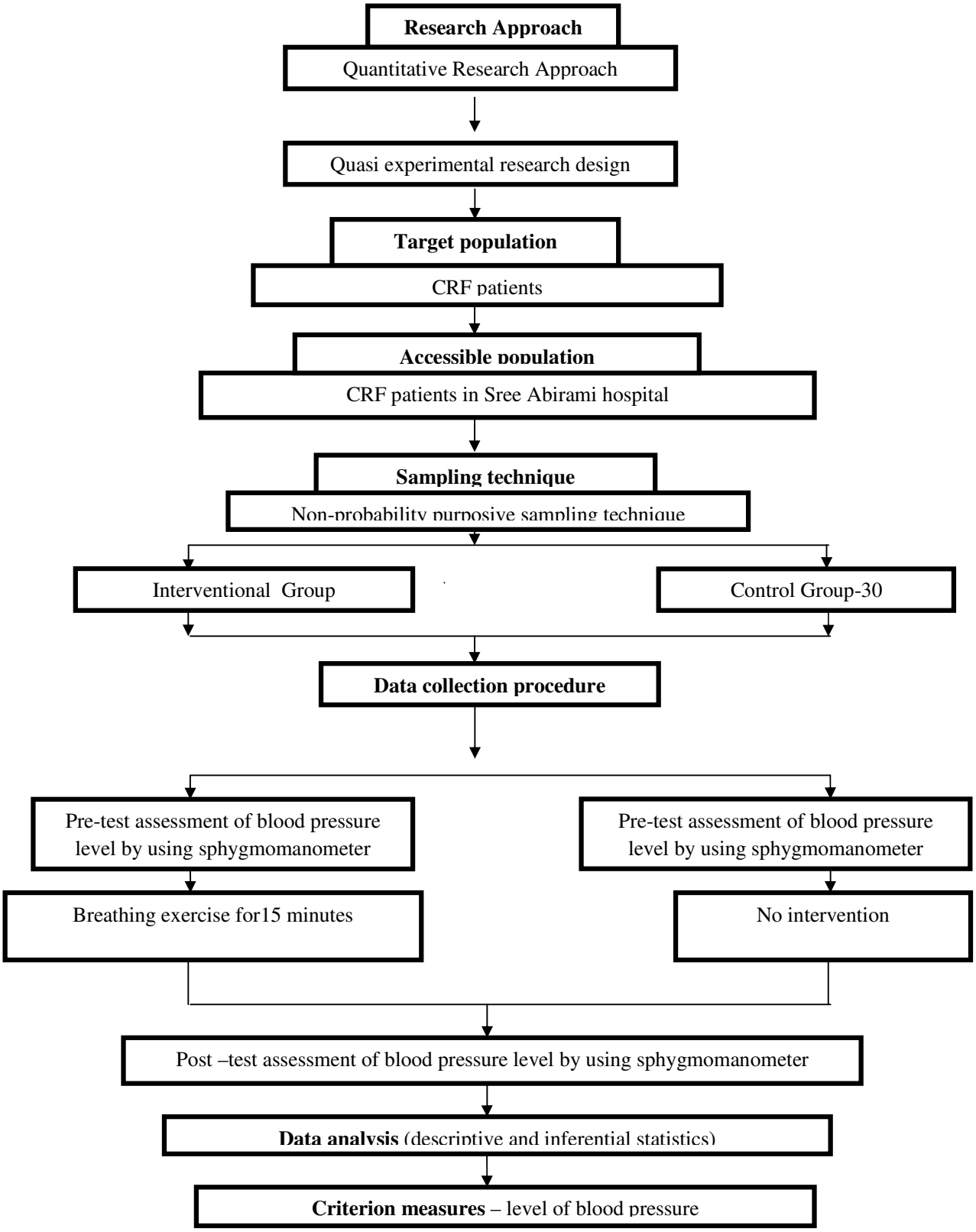


Fig 2 : The Schematic Representation of Research Methodology

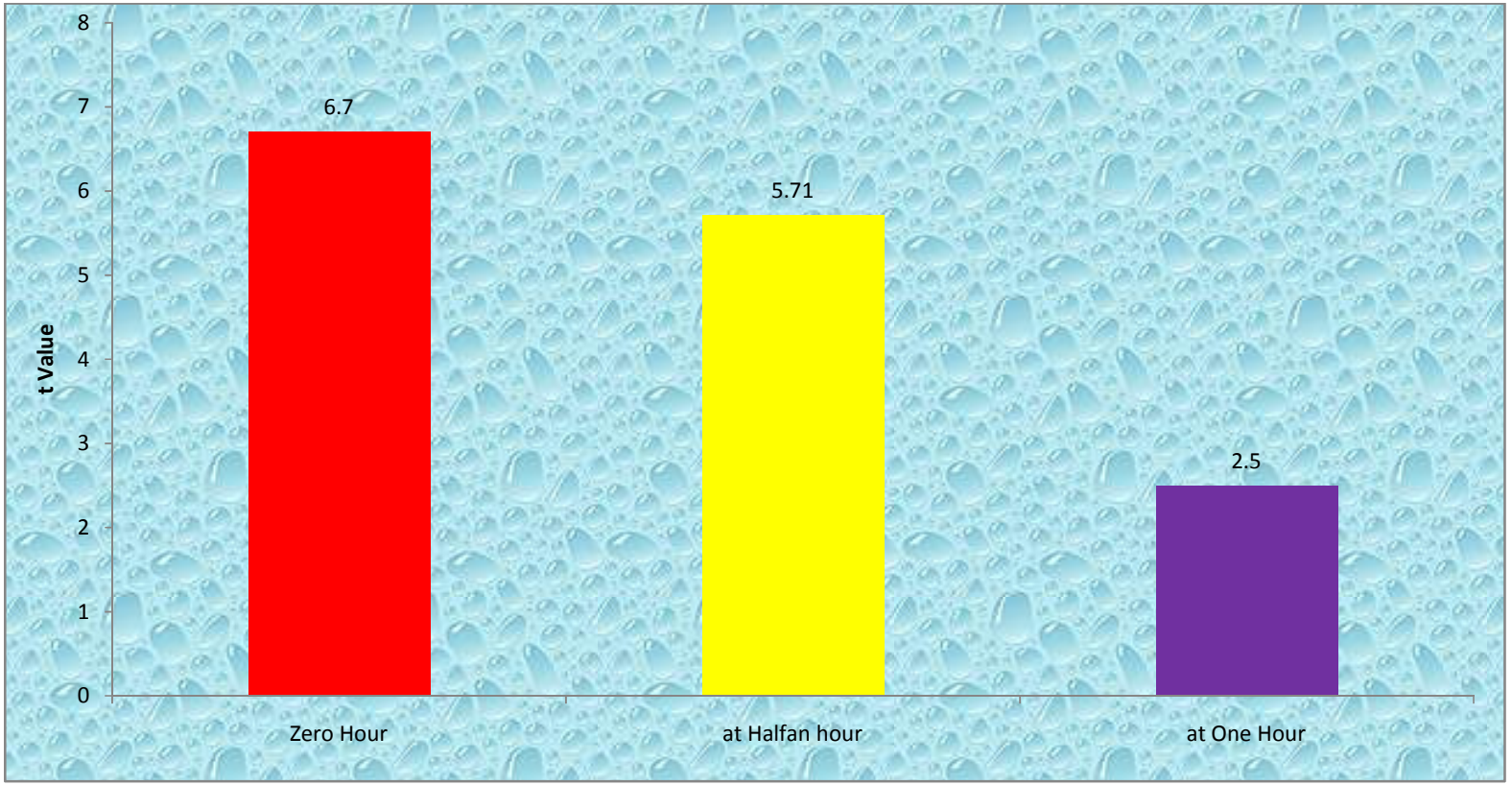


Fig 3 : Unpaid 't' Value of Post - Test level of Blood Pressure among Chronic Renal Failure in Control and Interventional Group.

INTERVENTION ON BREATHING EXERCISES

LESSON PLAN ON DEEP BREATHING EXERCISES

NAME OF THE STUDENT TEACHER	:	MS.INDU K.M
NAME OF THE SUBJECT	:	MEDICAL SURGICAL NURSING
TOPIC	:	BREATHING EXERCISES
GROUP	:	CHRONIC RENAL FAILURE PATIENTS WITH HYPERTENSION
METHOD OF TEACHING	:	LECTURE CUM DEMONSTRATION
TIME	:	30MINUTES
VENUE	:	SREE ABIRAMI HOSPITAL

CENTRAL OBJECTIVES

At the end of the class, the patient will be able to gain knowledge about deep breathing exercises and its application for reducing blood pressure and apply these skills in their daily practices.

SPECIFIC OBJECTIVES

The patient will be able to

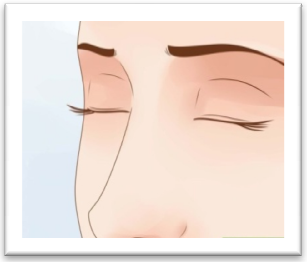
1) define the deep breathing exercises.
2) list down the types of deep breathing exercises.
3) list out the health benefits of abdominal breathing exercises
4) demonstrate the abdominal exercises
5) explain the steps of alternate breathing exercises
6) enumerate the benefits of alternate breathing exercises
7) enlist the precautions of alternate breathing exercises
8) discuss the benefits of equal breathing exercises
9) perform the equal breathing exercises

SL. NO.	TIME	LEARNING OBJECTIVES	CONTENT	AUDIO VISUAL AIDS	TEACHING ACTIVITIES	LEARNING ACTIVITIES	EVALUATION
1	I min		INTRODUCTION Deep breathing exercises mobilize secretions to facilitate airway clearance. Maximal deep breathing is obtained in the upright position because gravity helps pull the diaphragm and abdomen downward. In the supine position the abdomen pushes upward on the diaphragm and functional residual capacity and decreased vital capacity reduce the patient's ability to take a deep breath. The patient sitting in an upright position takes a prolonged deep inspiration through the nose holds the breath for at least 3 seconds and then exhales slowly in a relaxed manner while stimulating a normal sigh.				

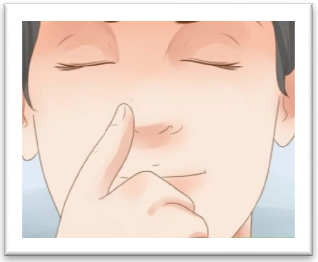
SL. NO.	TIME	LEARNING OBJECTIVES	CONTENT	AUDIO VISUAL AIDS	TEACHING ACTIVITIES	LEARNING ACTIVITIES	EVALUATION
2	1 min	define the deep breathing exercise	DEFINITION Deep breathing exercise refers to a practice of systemic and regular breathing pattern, steps and procedure of breathing using diaphragmatic muscles.	pamphlet	Teaching	Listening	What do you mean by deep breathing exercise?
3	**1**min	list down the types of breathing exercise	TYPES 1. Abdominal breathing exercises. 2. Alternate breathing exercises. 3. Equal breathing exercises. ABDOMINAL BREATHING EXERC ISE Deep breathing is breathing that is done by contracting the diaphragm, a muscle located horizontally between the chest cavity and stomach cavity.	Chart	Teaching	Listening	what are the types of deep breathing exercises

SL. NO.	TIME	LEARNING OBJECTIVES	CONTENT	AUDIO VISUAL AIDS	TEACHING ACTIVITIES	LEARNING ACTIVITIES	EVALUATION
4	2 min	List out the health benefits of abdominal breathing exercises	HEALTH BENEFITS • Reduce High blood pressure • Headaches • Stomach conditions • Depression • Anxiety	leaflet	Discussion with questioning	Listens and clear doubts	What are the health benefits of abdominal exercises?
5	5 min	Demonstrate the abdominal breathing exercises	STEPS ➢ With one hand on the chest and the other on the belly, patient takes deep breath in through the nose, ensuring the diaphragm inflates with enough air to create a stretch in the lungs and exhale slowly through mouth, having 10 breaths per minute.	slide	Demonstrate and explain	Listening and re-demonstration	What are the steps of abdominal breathing exercises?

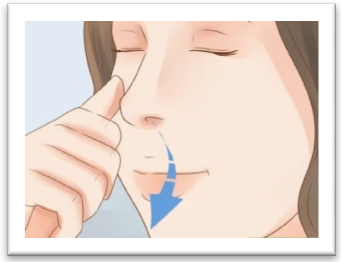
SL. NO.	TIME	LEARNING OBJECTIVES	CONTENT	AUDIO VISUAL AIDS	TEACHING ACTIVITIES	LEARNING ACTIVITIES	EVALUATION
6	5min	Explain the steps of alternate breathing exercises	Alternate breathing exercises Alternate breathing exercises are one of the excellent breathing exercises which are also known as Nadi Shodhana. Regular practice offers energy in the body and releases stress and anxiety. It should be practiced in the morning in the fresh air with empty stomach. STEPS	pictures	Listening	Redemonstration	What are all the steps of Alternate breathing exercises



1.Close the eyes

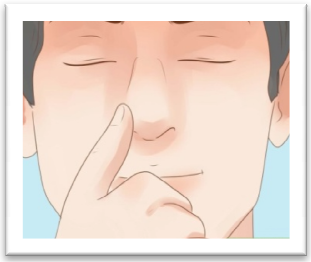


2.Close the right nostril
With the right thumb



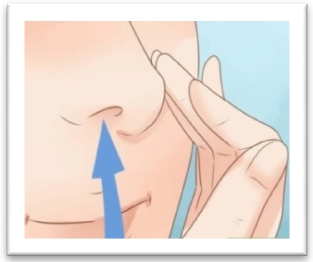
3.Inhale slowly through
t he left nostril

4.Remove your thumb
from your right nostril

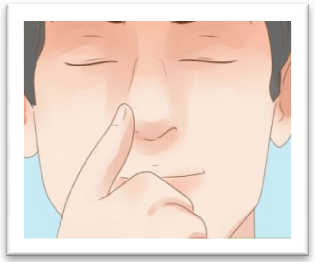


5. Use your ring and middle finger
to close your left nostril

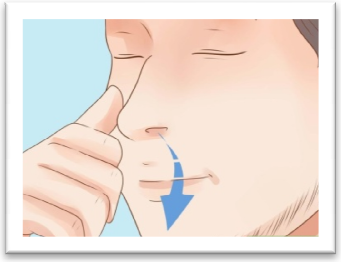
6.Exhale slowly and completely
with the right nostril



7.Inhale through the right
nostril



8.close the right nostril and
open the left



9. Breathe out slowly through the left nostril

10.Continue for 5 minutes

SL. NO.	TIME	LEARNING OBJECTIVES	CONTENT	AUDIO VISUAL AIDS	TEACHING ACTIVITIES	LEARNING ACTIVITIES	EVALUATION
7	3 min	Enumerate the benefits of alternate breathing exercises	Benefits of alternate breathing exercises • It improves blood circulation • It calms your mind • Keep away the heart related problems. • Provide relaxation to body and mind • It improves your concentration • Excellent for glowing skin • Helps to improve function of your lungs • Remove blockage of arteries • Relive stress, depression and hypertension • Cure asthma, head ache, migraine, • Neurological problems and heart blockage.	Handout	teaching	listening	What are the benefits of alternate breathing exercises?

SL. NO.	TIME	LEARNING OBJECTIVES	CONTENT	AUDIO VISUAL AIDS	TEACHING ACTIVITIES	LEARNING ACTIVITIES	EVALUATION
8	**4**	Enlist the precautions of alternate breathing exercises	Precaution - Practice under expert guidance. Pregnant women should practice alternate breathing exercises but over straining should be avoided. - It should be practiced on an empty stomach. - It should be done in the morning or both.	Black board	Explain and discussion	listening	What are all the precautions of alternate breathing exercises?
9	3 min	Discuss the benefits equal of breathing exercises.	EQUAL BREATHING EXERCISES Benefits 1. Calms the body by stimulating the parasympathetic nervous system. 2. Helps focus the mind.	Roller board	Questioning	Listening	What are all the benefits of equal breathing exercises?

10	5 min	Perform the equal breathing exercises	STEPS Patient is made to sit comfortably and asked to slowly inhale for 4 counts Then exhale slowly for a count of 4 through the nose, which is repeated for 20-30 times with 10 breaths/min.	videos	Explaining through videos	Listening and demonstration	What are all the steps of equal breathing exercises?

CONCLUSION

From this health education plan the client got adequate knowledge about the deep breathing exercises, its therapeutic uses, health benefits, techniques and the steps.

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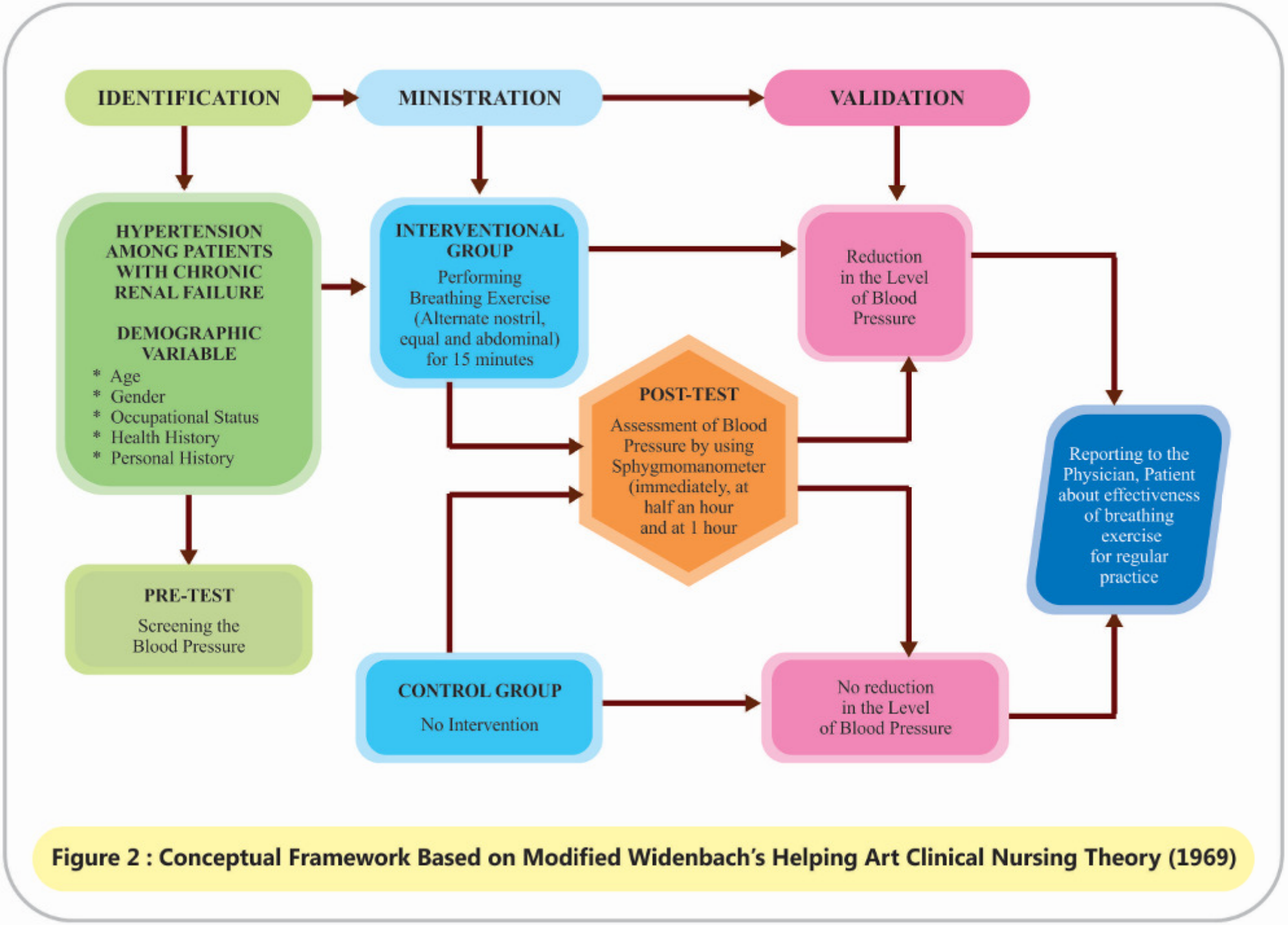

Figure 2 : Conceptual Framework Based on Modified Widenbach's Helping Art Clinical Nursing Theory (1969)

DATA COLLECTION

POST-TEST

BREATHING EXERCISES(INTERVENTION)

ABDOMINAL BREATHING EXERCISES

ALTERNATE BREATHING EXERCISESES

EQUAL BREATHING EXERCISES

POST-TEST

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- www.yogic way of life.com.
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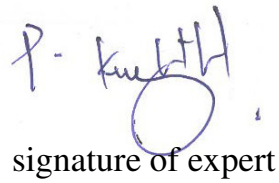
CONTENTVALIDITY CERTIFICATE

I hereby certify that I have validated the tool of Ms.Indu K.M, II year MSC nursing of Sree Abirami College of Nursing, Coimbatore, who has proposed to do a study on "**A study to assess the Effectiveness of Breathing Exercises on Hypertension among patients with CRF in selected Hospital at Coimbatore**."



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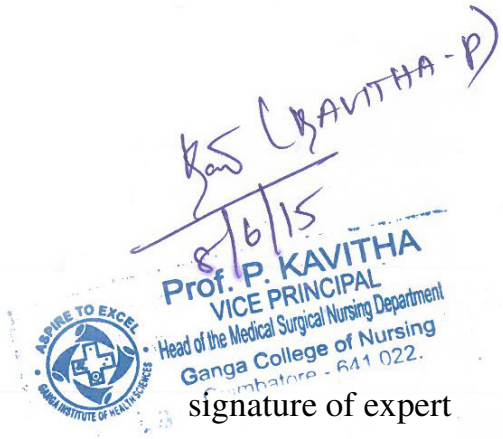

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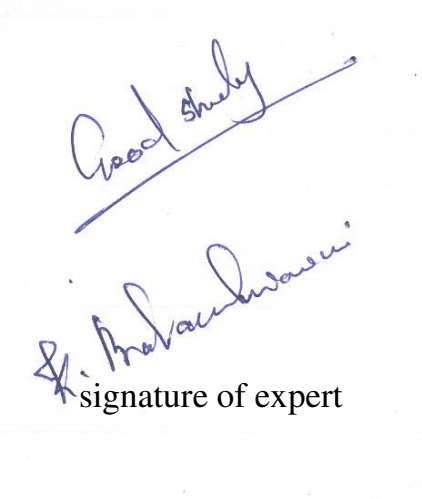

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Date

Place;

signature of expert

YAZH YOGA ZONE

பிற்சேர்க்கை K
பகுதி – I

பின்வருவனவற்றை நன்றாக படித்து சரியான விடையில் (✓) குறியிடவும்

மாதிரி எண்:
தேதி:

1. வயது (வருடம்)

அ. 20-30 வருடம் ( )

ஆ. 31-40 வருடம் ( )

இ. 41-50 வருடம் ( )

ஈ. 50 வயதுக்கு மேல் ( )

2. பாலினம்

அ.ஆண் ( )

ஆ.பெண் ( )

3. தொழில் வகை

அ. அரசு வேலை ( )

ஆ. சுய தொழில் செய்பவர் ( )

இ. தனியார் நிறுவனத்தில் தொழில் செய்பவர் ( )

ஈ. வேலையில்லாதவர் ( )

4. எத்தனை நாட்களாக உயர் இரத்த அழுத்தம் உங்களுக்கு உள்ளது ?

அ. 0-5 வருடம் ( )

ஆ. 5-10 வருடம் ( )

இ. 01-15 வருடம் ( )

ஈ. 15 வருடத்திற்கு மேல் ( )

5. எத்தனை நாட்களாக உயர் இரத்த அழுத்தத்திற்கு எதிரான நீங்கள் மருந்துகளை எடுத்துக் கொண்டு இருக்கிறீர்கள் ?

அ. 0-5 வருடம் ( )

ஆ. 5-10 வருடம் ( )

இ. 10-15 வருடம் ( )

ஈ. 15 வருடங்களுக்கு மேல் ( )

6. எத்தனை காலமாக உங்களுக்கு கடுமையான சிறுநீரக செயலிழப்பு பாதிப்பு உள்ளது ?

அ. 0-2 வருடம் ( )

ஆ .2-3 வருடம் ( )

இ. 3-4வருடம் ( )

ஈ. 4 வருடங்களுக்கு மேல் ( )

7. எத்தனை காலமாக இரத்த சுத்திகரிப்பு (டயாலிசிஸ்) செய்கிறீர்கள்?

அ. 0-2 வருடம் ( )

ஆ. 2-3 வருடம் ( )

இ. 3-4 வருடம் ( )

ஈ. 4 வருடங்களுக்கு மேல் ( )

8. டயாலசிஸ் செய்த பின்பு உங்களுக்கு ஏதேனும் உடலில் பக்க விளைவுகள் ஏற்பட்டிருக்கிறதா?

அ. உயர் இரத்த அழுத்தம் ( )

ஆ. தசைப்பிடிப்பு ( )

இ. குமட்டல் ( )

ஈ. மிக குறைவான இரத்த அழுத்தம் ( )

9. உங்களின் தினசரி வெளியேறும் சிறுநீரின் அளவு எவ்வளவு ?

அ. குறைந்த அளவில் (<1 ltr) ( )

ஆ. சாதாரண அளவு (1-1.5ltr) ( )

இ. அதிக அளவு ( )

10. உங்கள் இரத்தத்தில் பொதுவாக சீரம் கிரியாட்டினைன் அளவு எவ்வாறு உள்ளது ?

அ. குறைந்த அளவில் (<0.5 மிகி/டெசிலி) ( )

ஆ. சாதாரண அளவு (0.5 -1.1 மிகி/டெசிலி) ( )

இ. அதிக அளவு(>1.1 மிகி/டெசிலி) ( )

11. உணவு திட்ட அமைப்பு

அ.சைவம் ( )

ஆ.அசைவம் ( )

இ. சைவம் மற்றும் முட்டை மட்டும் சாப்பிடுவது ( )

APPENDIX H

CONSENT FORM

Respected Sir/Madam,

I am Indu. K.M doing my second year M.Sc., (N) in Sree Abirami College of Nursing, Coimbatore. I am conducting a Research on "A Study to assess the effectiveness of breathing exercise on hypertension among patients with Chronic Renal Failure in selected hospital at Coimbatore". I request your co – operation to complete my research. I assure you that you won't get any harm due to this intervention.

I Mr. / Mrs. ……. was explained about the effectiveness of breathing exercise on hypertension among patients with Chronic Renal Failure by Ms. Indu K.M, explained me the benefits of this intervention. I agree with this intervention of breathing exercises and this study project whole heartedly.

Yours Faithfully,

Date:

Time:

பிற்சேர்க்கை I

ஒப்புதல் படிவம்

மதிப்பிற்குரியோரே,

வணக்கம். செல்வி. இந்து. K.M என்ற நான் ஸ்ரீ அபிராமி செவிலியர் கல்லூரியில் முதுநிலை மேற்படிப்பு இரண்டாம் ஆண்டு படித்து வருகிறேன். நான் "சிறுநீரக செயலிழப்பு மற்றும் உயர் இரத்த அழுத்தம் உள்ள நோயாளிகளுக்கு, மூச்சு பயிற்சியானது உயர் இரத்த அழுத்தத்தை குறைக்கும் என ஆய்வு செய்ய உள்ளேன். இதற்காக நான் தங்களது முழு ஒத்துழைப்பை கேட்டுக்கொள்கிறேன். மேலும் இதனால் தங்களுக்கு எந்த ஒரு பாதிப்பும் ஏற்படாது என்பதை தெரிவித்துக் கொள்கிறேன்.

திரு. / திருமதி . .. . என்கிற நான், செல்வி. இந்து அவர்களிடமிருந்து சிறுநீரக செயலிழப்பு மற்றும் உயர் இரத்த அழுத்தம் உள்ள நோயாளிகளுக்கு, மூச்சு பயிற்சியானது உயர் இரத்த அழுத்தத்தை குறைக்கும் என்பதை பற்றியும் அதன் பயன்கள் பற்றியும் தெரிந்துகொண்டேன். இதனால் நான் முழு மனதுடன் இந்த ஆராய்ச்சியில் பங்குபெற ஒப்புதல் அளிக்கிறேன்.

கையொப்பம்

இடம் :

நாள் :

APPENDIX - G

CERTIFICATE FOR EDITING

TO WHOMSOEVER IT MAY CONCERN

Certify that the dissertation paper titled, **"A study to assess the effectiveness of Breathing Exercise on Hypertension among patients with Chronic Renal Failure in selected Hospital at Coimbatore"** by Ms.Indu k.m. It has been checked for accuracy and correctness of Tamil language used in presenting the paper is lucid, unambiuous, free of grammatical or spelling error and apt for the purpose.

Mrs. Tamilselvi Sivanandham,
MA, BEd, MPhil.

APPENDIX B

Requisition for Content validity

Sree Abirami Charitable Trust

Sree Abirami College Of Nursing

Approved by Govt. of Tamilnadu, Recognized by Indian Nursing Council, New Delhi
Tamilnadu Nurses & Midwives Council
Affiliated to the TN Dr.M.G.R. Medical University, Chennai.

Machegoundanpalayam Road, Eachanari (Po), Coimbatore - 641 021
Tel : 0422 - 2466666, 2466695, 2466696, 2466698, 2466699
E-mail : sreeabiramicollegeofnursing@gmail.com, Web : www.abiraminursingcollege.com

Date :

From

Ms. Indu. K.M

M Sc Nursing II Year

Sree Abirami College of Nursing

Coimbatore.

To

Through

The Principal

Sree Abirami College of Nursing

Coimbatore.

Sub: Validation of research tool requested reg.

Respected madam

With due respect, I Ms. Indu. K.M, II Year M. Sc Nursing student studying at Sree Abirami College of Nursing, Coimbatore, require conducting a research study as a part of the curriculum. The research topic proposed is "A study to assess the effectiveness of Breathing Exercises on hypertension among patients with Chronic Renal Failure in a selected Hospital at Coimbatore." I sincerely request to extend your guidance for my content validity.

Thanking you

Date: Yours faithfully,

Place: Coimbatore

APPENDIX – C

Name list of experts who validated the tool

Medical Experts:

Dr. P. Periaswamy,

Honorary Chairman,

Sree Abirami Hospital,

Coimbatore.

Dr. Balakrishnan,

Nephrologist,

Sree Abirami Hospital,

Coimbatore.

Nursing Experts:

Prof. Balasubramanian, M.Sc (N)

HOD of Medical Surgical nursing,

KMCH College of Nursing

Coimbatore.

Prof. Kuzhanthaivel, M.Sc (N)

HOD of Medical Surgical nursing,

KMCH College of Nursing

Coimbatore.

Mrs. Soniya Dass, M.Sc (N)

Principal,

K.G College of Nursing,

Coimbatore.

Mrs. Kavitha, M.Sc (N),

Vice Principal,

Ganga College of Nursing,

Coimbatore.

Therapist Expert:

Dr.Mohan Kumar

M.Phil, Ph.D

M.Sc Yoga

Coimbatore.

APPENDIX -F

CERTIFICATE FOR EDITING

TO WHOMSOEVER IT MAY CONCERN

Certify that the dissertation paper titled, **"A study to assess the effectiveness of breathing exercises on Hypertension among patients with Chronic Renal Failure in selected hospital at Coimbatore"** by Ms. Indu. K. M. has been checked for accuracy and correctness of English Language used in presenting the paper.

P.S.N.

23.01.2016.

Dr. P. SURIYA NARAYANAN. PH.D.,
PROFESSOR OF ENGLISH (Retd),
G.A.C., COIMBATORE-18.

CERTIFICATE FOR EDITING

TO WHOMSOEVER IT MAY CONCERN

Certify that the dissertation paper titled, **"A study to assess the effectiveness of Breathing Exercise on Hypertension among patients with Chronic Renal Failure in selected Hospital at Coimbatore"** by Ms.Indu k.m. It has been checked for accuracy and correctness of Tamil language used in presenting the paper is lucid, unambiuous, free of grammatical or spelling error and apt for the purpose.

Mrs. Tamilselvi Sivanandam,
MA, B.Ed, Mphil.

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Tel : 0422 - 2466666, 2466695, 2466696, 2466698, 2466699
E-mail : sreeabiramicollegeofnursing@gmail.com, Web : www.abiraminursingcollege.com

Date :

LETTER SEEKING AND GRANTING PERMISSION TO CONDUCT STUDY AT SREE ABIRAMI HOSPITAL, COIMBATORE

To

Dr. P. Periaswamy, MS., Mch, (Urology),
Honorary Chairman,
Sree Abirami Hospital,
Coimbatore.

Through

The Principal,
Sree Abirami College of Nursing,
Coimbatore.

Sub: Conduction of research study permission requested reg.

Respected sir,

With due respect, I Ms. Indu K.M, II Year M.Sc Nursing student studying at Sree Abirami College of Nursing, Coimbatore, require to conduct a research study as a part of the curriculum.

The research topic proposed is " A study to assess the effectiveness of breathing exercises on hypertension among patients with CRF in selected hospital at Coimbatore."

Therefore I humbly request your good self to grant me permission to conduct the above stated study at your esteemed institution. I assure you Sir, to abide to the rules and rules and regulations of your institution. Further I wish to state that this study will be useful one for the welfare of the inmates of your institution. Once again I request your kind permission.

Thanking you,

Date:
Place: Coimbatore

Yours faithfully,

PRINCIPAL
SREE ABIRAMI COLLEGE OF NURSING
COIMBATORE - 641 021.